CLAIMS

Claims 1-31 (cancelled).

32. (currently amended) A method of determining an optimal portfolio from a plurality of portfolios, the method comprising:

    a. constructing an efficient frontier that defines at least one efficient portfolio from said plurality of portfolios, wherein said constructing step comprises the following substeps;

        i. performing a simulation in which a plurality of mark-to-future values for each respective portfolio is computed, wherein said simulation is performed on a plurality of instruments over a plurality of future scenarios and a time horizon, wherein each of said future scenarios is associated with a probability of future occurrence;

        ii. calculating a first subset of unrealized gains for each respective portfolio from said plurality of mark-to-future values, wherein each unrealized gain of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said mark-to-future value exceeds said benchmark value, said first subset representing said respective portfolio's upside, and wherein said unrealized gains match payoffs of a call option;

        iii. calculating a second subset of unrealized losses for each respective portfolio from said plurality of mark-to-future values, wherein each unrealized loss of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said benchmark value exceeds said mark-to-future value, said second subset representing said respective portfolio's downside, and wherein said unrealized losses match payoffs of a put option;

        iv. calculating a call value and a put value for each respective portfolio, wherein said call and put values are ~~functions~~ the expected values of said first and second subsets respectively;

        v. solving a linear program to determine an efficient portfolio from said plurality of portfolios in which the call value therefor is maximized with the put value therefor not exceeding a specified limit; and

        vi. repeating substep (v) for a plurality of limits, thereby generating at least one efficient portfolio;

    b. providing a utility function; and

    c. selecting an optimal portfolio from said at least one efficient portfolio that maximizes said utility function~~-~~.

wherein said linear program solved at substep (v) is defined as

$$\text{maximize}(x,u,d)\ p^T u$$
such that

$p^T d \le k$	(μ)
$u - d - (M - rq^T)x = 0$	(π)
$-x \le -x_L$	(ωL)
$x \le x_U$	(ωU)
$u \ge 0$	
$d \ge 0$	

where

q is the current mark-to-market values of securities;

M is the Mark-to-Future values (M_{ji} = value of security i in scenario j);

p is the subjective prior scenario probabilities;

r is the benchmark growth rates;

x_L is the lower position limits;

x_U is the upper position limits;

x is the position sizes;

d is the portfolio unrealized loss or downside;

u is the portfolio unrealized gain or upside.

33. (previously presented) The method of claim 32, wherein said simulation is also performed on one of a benchmark instrument and a benchmark portfolio in said performing substep, and wherein said first subset of unrealized gains and said second subset of unrealized losses are calculated relative to mark-to-future values computed for said one of a benchmark instrument and a benchmark portfolio under said plurality of future scenarios.

34. (cancelled).

35. (cancelled).

36. (previously presented) The method of claim 32, wherein said utility function is

expected utility = (call value) - λ(put value),

where λ is a constant indicative of a level of risk aversion.

37. (previously presented) The method of claim 32, further comprising the step of determining a price for portfolio insurance associated with said portfolio, wherein a security having payoffs equal to said second subset of unrealized losses is identified, and wherein said price for portfolio insurance is equal to the price of said security at which an investor that makes decisions based on

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said utility function and that holds said optimal portfolio will be indifferent to trading said security.

38. (previously presented) The method of claim 37, wherein said step of determining a price for portfolio insurance comprises evaluating the formula,

$$\hat{q}_i = \frac{1}{r_o} M^T_{(i)}\rho$$

where $r_o = r^T\rho$,

and wherein $M_{(i)}$ is replaced with the values of said second subset of unrealized losses of said optimal portfolio.

39. (currently amended) A method of determining an optimal portfolio from a plurality of portfolios, the method comprising:

   a. constructing an efficient frontier that defines at least one efficient portfolio from said plurality of portfolios, wherein said constructing step comprises the following substeps;
      i. performing a simulation in which a plurality of mark-to-future values for each respective portfolio is computed, wherein said simulation is performed on a plurality of instruments over a plurality of future scenarios and a time horizon, <u>wherein each of said future scenarios is associated with a probability of future occurrence</u>;
      ii. calculating a first subset of unrealized gains for each respective portfolio from said plurality of mark-to-future values, <u>wherein each unrealized gain of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said mark-to-future value exceeds said benchmark value,</u> said first subset representing said respective portfolio's upside, and wherein said unrealized gains match payoffs of a call option;
      iii. calculating a second subset of unrealized losses for each respective portfolio from said plurality of mark-to-future values, <u>wherein each unrealized loss of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said benchmark value exceeds said mark-to-future value,</u> said second subset representing said respective portfolio's downside, and wherein said unrealized losses match payoffs of a put option;
      iv. calculating a call value and a put value for each respective portfolio, wherein said call and put values are ~~functions~~ <u>the</u>

expected values of said first and second subsets respectively;

    v. solving a linear program to determine an efficient portfolio from said plurality of portfolios in which the put value therefor is minimized with the call value therefor being at least a specified limit; and

    vi. repeating substep (v) for a plurality of limits, thereby generating at least one efficient portfolio;

b. providing a utility function; and

c. selecting an optimal portfolio from said at least one efficient portfolio that maximizes said utility function.

40. (currently amended) A method of determining an optimal portfolio from a plurality of portfolios, the method comprising:

a. performing a simulation in which a plurality of mark-to-future values for each respective portfolio of said plurality of portfolios is computed, wherein said simulation is performed on a plurality of instruments over a plurality of future scenarios and a time horizon, wherein each of said future scenarios is associated with a probability of future occurrence;

b. calculating a first subset of unrealized gains for each respective portfolio from said plurality of mark-to-future values, wherein each unrealized gain of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said mark-to-future value exceeds said benchmark value, said first subset representing said respective portfolio's upside, and wherein said unrealized gains match payoffs of a call option;

c. calculating a second subset of unrealized losses for each respective portfolio from said plurality of mark-to-future values, wherein each unrealized loss of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said benchmark value exceeds said mark-to-future value, said second subset representing said respective portfolio's downside, and wherein said unrealized losses match payoffs of a put option;

d. calculating a call value and a put value for each respective portfolio, wherein said call and put values are ~~functions~~ the expected values of said first and second subsets respectively;

e. providing a utility function, wherein said utility function is dependent one at least one of said call value and said put value; and

f. solving a mathematical program to determine an optimal portfolio from said plurality of portfolios, wherein said mathematical program incorporates said utility function.

41. (currently amended) A method of evaluating a portfolio in which the portfolio is associated with a put value and a call value, the method comprising:

a. performing a simulation in which a plurality of mark-to-future values for said portfolio is computed, wherein said simulation is performed on a plurality of instruments over a plurality of future scenarios and a time horizon, wherein each of said future scenarios is associated with a probability of future occurrence;

b. calculating a first subset of unrealized gains for said portfolio from said plurality of mark-to-future values, wherein each unrealized gain of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said mark-to-future value exceeds said benchmark value, said first subset representing said portfolio's upside, and wherein said unrealized gains match payoffs of a call option;

c. calculating a second subset of unrealized losses for said portfolio from said plurality of mark-to-future values, wherein each unrealized loss of said first subset is the absolute difference between a mark-to-future value and a benchmark value when said benchmark value exceeds said mark-to-future value, said second subset representing said portfolio's downside, and wherein said unrealized losses match payoffs of a put option;

d. calculating a call value and a put value for said portfolio, wherein said call and put values are ~~functions~~ the expected values of said first and second subsets respectively; and

e. calculating one or more performance measures for said portfolio from at least one of said call and put values.

42. (previously presented) The method of claim 41, wherein said simulation is also performed on one of a benchmark instrument and a benchmark portfolio in said performing step, and wherein said first subset of unrealized gains and said second subset of unrealized losses are calculated relative to mark-to-future values computed for said one of a benchmark instrument and a benchmark portfolio under said plurality of future scenarios.

43. (cancelled).

44. (previously presented) The method of claim 41, wherein said one or more performance measures calculated in step (e) comprises at least one measure selected from the following group:

    i.   put value;
    ii. call value;
    iii. call value − put value;
    iv. call value / put value; and
    v. call value − λ(put value),
       where λ is a constant indicative of a level of risk aversion.

45. (previously presented) The method of claim 41, further comprising the steps of:

      f. repeating steps (a) through (e) for each portfolio in a plurality of portfolios;

      g. ordering said plurality of portfolios according to at least one of said one or more performance measures; and

      h. selecting a portfolio from said plurality of portfolios ordered in step (g).